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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,854	03/30/2001	Tatsurou Kawamura	43888-100	7033

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EXAMINER	
GORDON, BRIAN R	
ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/820,854	KAWAMURA, TATSUROU	
	Examiner	Art Unit	
	Brian R. Gordon	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3-31-04*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 8, 11, 19, and 21-22* is/are rejected.

7)☐ Claim(s) *2-7,9,10,12-18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Response to Arguments

1. Applicant's arguments filed March 31, 2004 have been fully considered but they are not persuasive.

Applicant asserts that Curtis does not disclose measuring a volume based on a change in sensed light component. The examiner respectfully disagrees. Curtis discloses a method of calibration (verifying) in which the absorbance of the container at the first wavelength and at a second wavelength are measured and then after the addition of a solution a third absorbance is measured and the **change** that is measured relative to the first two absorbance values is used to calculated a volume or verify a volume when calibrating.

Applicant argues that Clinkenbeard and Hughes does not disclose the teaching of the verifying that a predetermined amount of said sample solution is held in said sample cell based on a change over time in an output signal from said photosensor.

Applicant states that both Clinkenbeard and Hughes disclose sensing a one-time discrete change from sensing light to not sensing light. The examiner asserts that the one-time discrete change is sufficient to meet the limitation as presently drafted in the claim. While the sensing may be a one-time change, it is still considered as a change that occurs over time. The one-time change occurs over what may be considered a relative short period of time. However it remains a change of sensed light over time.

It appears as if applicant is to argue that the verifying step incorporates a continuously measuring the intensity of light during a period of time wherein a light intensity is always detected. However during the measuring period of time, the degree or level of light intensity varies or fluctuates and those changes/fluctuations are measured and considered as the verification. The claim on the other hand as presently drafted does is not commensurate in scope with such an argument.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 8, 11, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Curtis et al. US 5,298,978.

Curtis et al. disclose methods and apparatus for accurately determining the volume of a pipette using a photometer. A reagent system for use with the photometer

includes a first container holding a reference solution and at least one second container holding a sample solution. A container holding the reference solution having maximum absorbance at a first wavelength is positioned in the photometer. The absorbances (optical characteristic measured by the photometer/photosensor) of the container at the first wavelength and at a second wavelength are measured (measuring transmitted light). Then the optical pathlength of the container at the second wavelength is calculated from the measured absorbances at the first and second wavelengths. An aliquot of the sample solution is introduced into the container with a pipette to be calibrated. The sample solution has maximum absorbance at the second wavelength. The sample solution is mixed with the reference solution to form a mixture. Then the absorbance (measuring characteristic of sample) of the mixture in the container is measured at the second wavelength. The volume of the aliquot is calculated from the absorbance of the mixture and the optical pathlength of the container (verifying a predetermined amount of sample solution). The volume of the aliquot represents the volume of the pipette.

5. Claims 1, 8, 11, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes et al. US 4,381,895.

Hughes et al. discloses a method of using a refractometer for determining the amount of dissolved solids in a series of sample solutions which comprises: directing a collimated monochromatic light beam through an empty hollow prismatic container and refracting it onto first light sensing means (verifying predetermined amount), indicating when the refractometer is ready to receive a sample, introducing a sample solution into

the prismatic container, thereby causing refraction of the collimated light beam passing therethrough to a second light-sensing means, instead of to the first light-sensing means, commencing the testing sequence only after all of the light beam has been refracted away from the first light-sensing means, and simultaneously indicating that testing is in progress, determining the amount of refraction of the light beam caused by passing through the sample solution (measuring optical characteristic of sample), converting the amount of refraction of the light beam into an analog electrical signal, converting the analog signal to a digital signal, displaying digitally an amount corresponding to the digital signal, stated as a function of the concentration of dissolved solids in the sample solution, automatically draining the prismatic container, and simultaneously causing the light beam to be refracted to the first light-sensing means, and automatically recommencing the sequence by indicating that the refractometer is ready to receive another sample.

6. Claims 1, 8, 11, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Clinkenbeard US 5,104,527.

Clinkenbeard discloses A process and apparatus for automatically monitoring or adjusting, or both, the concentration of total reducers (i.e. reduced sulfur-containing constituents which consume iodine) in an aqueous medium (e.g. waste water stream) whereby the time period for iodine titration of an untreated sample of the aqueous medium is automatically measured by measuring a time of light being transmitted through a titration sample cell and this time measurement is automatically translated

into an output signal to either a monitoring means or a process adjustment means (e.g. oxidant chemical feed pump) or both.

The amount of sample (preferably 100 ml of water sample) sent to sample cell 24 is controlled by an optical liquid level detector system shown in FIG. 3. The sample cell 24 is preferably made of clear acrylic plastic. Other similar clear, rigid and chemically inert materials may be used instead for constructing cell 24. As the sample cell 24 fills with the water sample from the bottom of the cell 24, it reaches the level of a light source 28 and light sensor 30 (verifying predetermined amount). In an empty sample cell 24, the path of light from light source 28 passes through air directly to light sensor 30. When water reaches this level of the light path, the light path is refracted by the water away from the sensor 30. Both of the effects are shown in FIG. 3. At that point of time, the sensor 30 immediately sends an electronic signal to computer/interface module 32 in an electronic enclosure shown in FIG. 1. The computer/interface module 32 in turn sends an electronic signal to solenoid-activated piston 26 to close it, as it had previously done to open or close valves 8, 12, 16 and 18 as described above. Power supply means 34 provides the electric power for these signals. When solenoid-activated piston 26 closes, a precise predetermined sample quantity has been introduced into sample cell 24 and is ready for testing.

Iodine is also added to the verified amount of sample solution and its concentration is measured as a function of light transmission (column 7, line 62-column 8 line 41).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clinkenbeard US 5,104,527.

Clinkenbeard discloses a system in which a first optical system indicates that a sample celled is filled. After the sample cell 24 has been filled with the water sample and Reagents A, B, C and D and the resulting mixture agitated, a second optical system placed on the cell 24 is activated. This second optics system is shown in FIG. 4 and preferably consists of a controlled light source 96 and a light sensor 98. Controlled light source 96 is preferably a red light-emitting diode having a light wavelength in the range of about 700 to 800 nanometers (nm).

The second optics systems is activated as follows The light intensity of controlled light source 96 is gradually increased from zero intensity in increments by electronic

signals from computer/interface module 32 until light sensor 98 senses the presence of the red light from the source 96 through the filled sample cell 24. At that point, sensor 98 sends computer/interface module 32 an electronic signal and the computer/interface module 32 stops ramping up the light intensity. The purpose of this initial adjustment of light intensity is to null out the interfering effects of sample color or turbidity which may vary from water sample to water sample.

Clinkenbeard does not disclose that a single optical system verifies that the cell is full as well as measures an optical characteristic of the sample solution.

However it would have been obvious to one of ordinary skill in the art to recognize that the second optical system actually has the ability to perform both operations. The second optical system diode can be adjusted to emit a constant wavelength. At the point when the sample is being introduced into the cell it would be obvious to recognize that change in the constant wavelength is an indication/verification that the sample cell is filled for the second optical system only functions when the cell is full.

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al. US 4,381,895.

Hughes discloses an optical system comprising two sensors 36 and 40. While it is disclosed that phototransistor 36 is disposed in a height relationship such that the beam 35 goes directly to and illuminates the phototransistor 36 when the prism 13 empties.

Photopotentiometer 40 is disclosed as measuring the optical characteristic of the sample solution.

Hughes does not specifically recite that one of the two sensors are employed to verify the presence of a volume of sample as well as measure an optical characteristic of the solution.

It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that photopotentiometer 40 actually functions as to verify a volume and measure an optical characteristic. The photopotentiometer only functions when light is reflected upon it. The light is reflected on the photopotentiometer only when the liquid has reached a certain height or volume within the sample container. As such it would have been obvious to one of ordinary skill in the art to recognize when photopotentiometer is activated or receives a signal that there is a minimal amount of liquid present to cause the light to be reflected thereon.

Allowable Subject Matter

7. Claims 2-7, 9-10, 18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach nor fairly suggest that step (b) is a step of verifying that the predetermined amount of said sample solution is held in said sample cell based on the fact that an absolute value of an amount of change in said out put

signal per hour is maintained at a first predetermined value or less for a first predetermined duration or longer.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.

brg

Jill Warden
Supervisory Patent Examiner
Technology Center 1700